Dec. 16, 1952 W. W. SPOONER 2,621,504

APPARATUS FOR STEAMING WEBS

Filed Sept. 3, 1947 2 SHEETS—SHEET 1

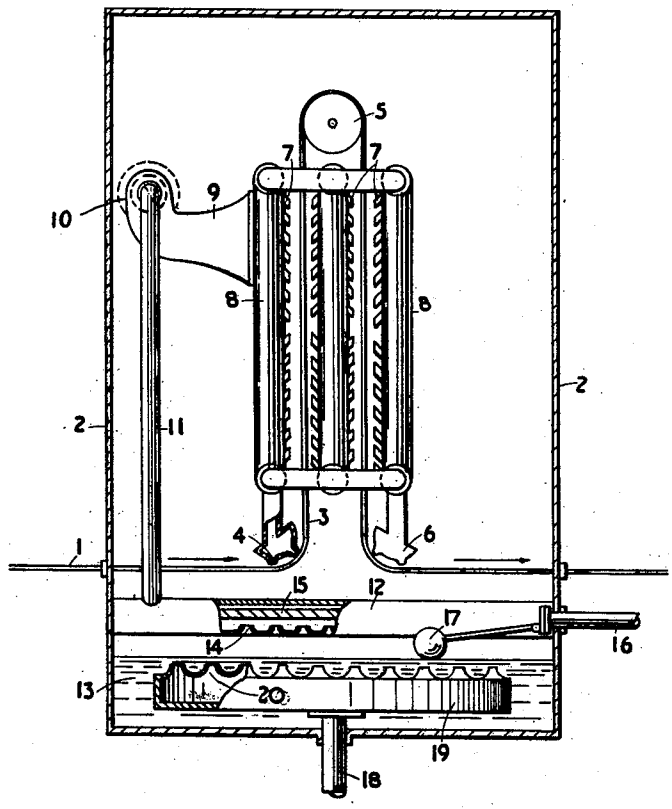


Fig. 1.

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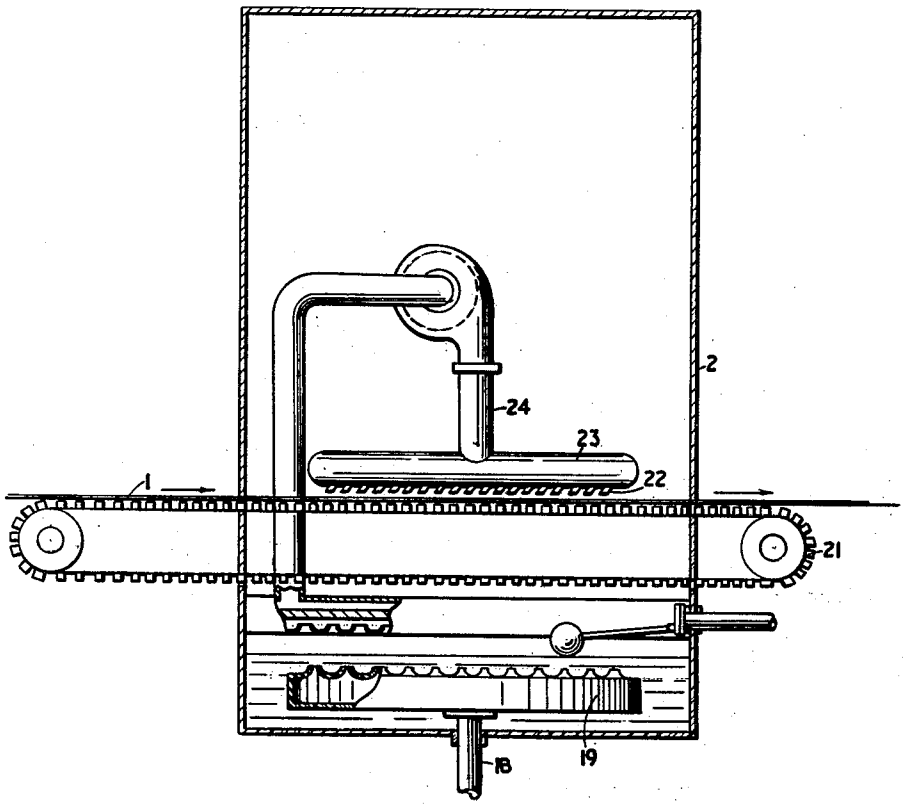


Fig. 2.

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UNITED STATES PATENT OFFICE

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APPARATUS FOR STEAMING WEBS

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Application September 3, 1947, Serial No. 771,934
In Great Britain September 4, 1946

1 Claim. (Cl. 68—5)

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This invention concerns the steaming of webs of textile material which has been printed or impregnated with dye in an apparatus wherein the web is continuously passed through a chamber having nozzles disposed for blowing steam on to the moving web by means of a fan.

An object of the present invention is to provide an improved apparatus for treating textile web fabrics with saturated steam.

The invention is further described with reference to the accompanying diagrams, in which:

Fig. 1 is a sectional elevation of one form of construction,

Fig. 2 is a sectional elevation of an alternative form of construction.

In the arrangement shown in Fig. 1 cloth 1, impregnated with chemicals which react exothermically in the presence of steam, is passed into a closed chamber 2 and is then guided round into a vertical flight, as shown at 3, without passing over a rigid guide surface, by air or steam jets from nozzles 4, thence is guided back on a return vertical flight either by a roller 5 or by other steam or air jets, and then back into a horizontal flight by air or steam jets 6 corresponding to the jets 4, and thence out from the closed chamber 2.

The cloth in the vertical flights has directed upon it a plurality of jets of steam substantially in a saturated condition at high velocity from nozzles 7 leading from headers 8 connected to a supply pipe 9, the steam being impelled by means of a fan 10 drawing steam from pipe 11, which pipe 11 leads away from a chamber 12 disposed at any place within the chamber 2 but conveniently adjacent to its base, this chamber having a perforated base, so that steam in a saturated condition by reason of the fact that it is passing over a water bath 13 in the base of the chamber, can enter through the perforations 14 at the base of the chamber 12, a baffle plate 15 being provided, if necessary, to avoid globules of water passing with the steam into the pipe 11.

The water is provided by means of an inlet pipe 16 with the usual ball tap control 17, thus maintaining the water level in the chamber constant.

In certain cases it may be necessary to provide make-up steam, in which case this is admitted by pipe 18 into a header 19 provided with a plurality of jets 20 on its upper surface, so that steam bubbles through the water 13.

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In the modified arrangement shown in Fig. 2, the fabric web 1 is conveyed through the chamber 2 by means of a conveyor 21 to have steam, maintained in a saturated or substantially saturated condition, directed upon it from nozzles 22 on a header 23 connected to a supply pipe 24 corresponding to the pipe 9 of Fig. 1.

It will consequently be seen that provision is made to add make-up water where the heat of the chemical reaction is so high that little or no condensation occurs. On the other hand, where the heat of reaction is not so great and steam does condense it is possible to add make-up steam.

I declare that what I claim is:

An apparatus for the treatment of webs of textile cloth including, in combination: a treatment chamber adapted to contain a water bath; means for guiding a web of textile cloth continuously through said chamber; means for leading make-up steam into said chamber comprising, nozzles disposed below the level of water in the water bath and a steam inlet connected to said nozzles; means for directing steam into said web including, a header disposed parallel to a run of the textile web in said treatment chamber, high velocity nozzles on said header directed towards the web, a collector chamber disposed immediately above the level of water in the bath, said collector chamber having a perforated base for admission of steam, and a circulating fan having an inlet conduit leading to said collection chamber and an outlet leading to said header; and means for maintaining the level of water in the water bath constant.

WILLIAM WYCLIFFE SPOONER.

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